In-house or send-out? Lab approaches to gene panels

May 2023—*Achieving standardization and setting up processes around the use of next-generation sequencing panels for the care of patients with cancer is a long road requiring a lot of expertise. That's what Compass Group members told* CAP TODAY *publisher Bob McGonnagle in their April 4 call. In short, it's a struggle. "If you've seen one example of how someone is using NGS, you've seen one example because there are so many variations," said Gregory Sossaman, MD, of Ochsner Health.*

The Compass Group is an organization of not-for-profit IDN system laboratory leaders who collaborate to identify and share best practices and strategies. Here, this month, is what they shared on biomarker testing in oncology.

The ongoing demand for expensive gene panels for detecting mutations that lead to targeted therapies for patients with cancer is an issue that is getting attention. Lauren Anthony, can you give us your view of this?
Lauren Anthony, MD, system laboratory medical director, Allina Health, Minneapolis: Getting consensus and standardization and establishing high-reliability processes around these labor-intensive manual send-outs is a challenge, and there's an increasing desire for and use of the largest possible gene panels. Our organization had a push with the laboratory and the Cancer Institute leadership to standardize to one primary partner, rather than leave it to choice and add multiple overlapping processes for the same type of testing. We did a request-for-information, request-for-proposal process in which we looked at the different partners, what they offer, how they facilitate the send-outs to their lab, and how they support those processes to minimize labor and maximize reliability. These are all manual—you have to curate the case, get slides, get blocks, and make sure there's enough tissue and tumor. Getting those out and getting the results back has been a challenge.


Dr. Anthony

Many of these big labs, such as Foundation Medicine and Caris Life Sciences, have established an Epic interface for orders and results. I'm not sure whether that comes through as a PDF or you need Epic's genomic module to receive discrete data. There's a lot of data coming through that people would want to mine, send to registries, apply for research, and so forth, but how the data are going to be integrated into the medical record may require extra packages. There was an announcement about one of the companies having a partnership with Epic to integrate genetic data into the medical record, but what form would that be? Is it a PDF? That's not discrete data. So I can see the functionality starting out, but how to integrate it into the record and manage it to mine the data at your site will be important.

You're looking to standardize on one send-out lab for gene panels, is that correct?
Dr. Anthony (Allina): One primary NGS partner to facilitate standard work and high reliability. We will then leverage that partner to support us and reduce the work of curating these cases, preparing them for send-out, and processing results.

Julie Hess, would you like to comment on this, because I'm sure your volumes are growing.
Julie Hess, VP, laboratory services, AdventHealth, Orlando, Fla.: We also are getting a lot of requests for the special panels. We went live March 31 with the TruSight Oncology 500 panel in-house. That felt monumental. It took a lot of resources and exploring technology to understand how to do that ourselves. We hope it gives us something comprehensive for a period of time, but this is a moving target. As soon as you feel like you have the answer, they change the question.

Was that a difficult decision? Did it take months to arrive at your current solution?
Julie Hess (AdventHealth): More than months. We started the conversation before COVID but came back to it in recent months. Validation was challenging, but resolving server storage space was also a concern.

Dwayne Breining, what are you looking at currently for a solution to the demand in your laboratory?
Dwayne Breining, MD, executive director, Northwell Health Laboratories, New York: We're in the process of setting up in-house NGS for a couple of the standardized panels and standardizing the approach for blood-based and solid tumors. It's a long road, and in New York State it's even longer because all of these have to be done and validated like a laboratory-developed test and go through the New York State process, which is ultra-rigorous. The only way to support the treatment, educational, and research needs in the institution, even to the level of recruiting top-notch oncology staff who often come with a book of research they want to continue in your institution, is to set it up on your own.

We haven't standardized on a single vendor, and it is a moving target, as Julie said. To a certain extent people want to keep directing tests to the companies that have the most genes on their panels, and that's tough to keep up with. As we set up multidisciplinary molecular tumor boards to go through this, we're hoping to urge everyone toward a more standardized approach, at least for the most common tumor types.

Clark Day, can you give us your perspective as a laboratory executive? No matter what you do, this gets to be pretty expensive, doesn't it?
Clark Day, VP of system laboratory services, Indiana University Health: It is exceedingly expensive. We also use Foundation and Caris. At the IU School of Medicine we have physicians, faculty, and researchers who have their own testing capability, and we have agreements to send certain types of testing to them.

Our new chair of the Department of Pathology and Laboratory Medicine is Dr. Michael Feldman. He has experience in this realm and will be progressive and push us forward. I think his position is to not build something that duplicates what others can do—because it's so expensive and can be unprofitable to do, let's continue to send out where others have it figured out, and we'll develop our own testing where it makes sense, for certain types of genetic testing for certain patients or conditions. That's our strategy in the early stages.

The CAP TODAY cover story in the April issue points out that this is a wonderful new world but all too often the lab is left out in some cases regarding how it will be paid for this service. Eric Carbonneau, tell us about your experience at TriCore.
Eric Carbonneau, MS, MLS(ASCP), chief operating officer, TriCore Reference Laboratories, Albuquerque: We've been sticking with targeted panels, and our pathologists have been guiding that. We have attempted to partner mostly with Tempus on offering full gene panels when it's necessary. We're doing pathology review and having our pathologists talk to our oncologists about when it's necessary. We are in the midst of redoing our myeloid panels to make them a little larger so we don't have to rely on the full panels so often. But it's going to be a give-and-take over time.

Joe Baker, tell us about the business and administrative side of doing these tests.
Joseph Baker, VP of laboratory, Baylor Scott & White Health, Dallas: From an administrative standpoint we have similar challenges to what other organizations are experiencing and are managing utilization as appropriate. We use a few reference labs in this area and have some NGS panels in-house within our central Texas region. We are working toward alignment in the system, but it will take some time to get there. It is very expensive, as we all know. The referral NGS space is a competitive one, and we have seen some aggressiveness in the approach used to get our business.

Peter Dysert, what's your perspective at Baylor Scott & White?
Peter Dysert, MD, chief, Department of Pathology, Baylor Scott & White Health, Dallas: This is the future of surgical pathology, so it's a strategic question, not just a cost-management one. It is a big opportunity for pathologists to be up front and involved more directly in the care and management of the patient. We know from a discovery and therapeutic perspective that this is going to be a rapidly changing playing field, with new and exciting

advancements. You have to be prepared and see this as a significant part of your future.

We've been partnering with our medical staff using our molecular-boarded pathologists. We have site committees to cover the various parts of the body, and we bring those needs to the site committees to get their expertise in terms of picking what we'll consider to be the front-line panels that go with diagnosis, in an attempt to agree on the best approach for the treatment of disease. Beyond that we have examples of off-label use of therapeutics and testing that have proved to be beneficial for the patients. You still must have another layer where the molecular pathologist can communicate directly with the clinicians when they decide to go a different direction and help them find the best solution. We also have molecular tumor boards, which we consider to be an ongoing educational effort to keep everyone informed. There are a lot of nuances in these panels that busy clinicians don't always appreciate, so they've found the partnership with our molecular pathologists to be helpful and important.

Also in the strategy realm is biobanking. It becomes a whole new frontier, coupled with how to deal with the molecular strategy. There's a lot of interest in leveraging the value of the EHR and looking for patients who are failing front-line therapies. Pharma has a lot of interest in knowing those individuals, as well as the underserved population that goes with this. It's part of a larger strategy that we see as significant and relevant to our future as pathologists.

If we look two or three years out on this strategic vision, will you have more molecular pathologists and in-house capability?
Dr. Dysert (Baylor Scott & White): I hope it goes the way of IHC, which started off being almost a subspecialty but with knowledge transfer to subspecialty surgical pathologists. My hope is that the molecular group, because it's a small number of people, can stay on the bleeding edge of technology and transfer knowledge and technology back to our surgical pathologists as they gain the experience and insight of working with these tumor boards and site conferences.

This will be essential to having the kind of faculty in oncology that an outfit like Baylor Scott & White aspires to and needs in order to achieve its mission.
Dr. Dysert (Baylor Scott & White): One of the first questions candidates ask is, "What's your capability in-house?" or "What are your partnerships?" And the point about data that others made is important to answering their requests as well.

Ian McHardy, you have a hotbed of academic and community pathology and systems in California. What's your take on this area now?
Ian McHardy, PhD, D(ABMM), director, microbiology, molecular, and immunology laboratory, Scripps Health, San Diego: It's an area we continue to explore. We're monitoring the situation in much the same way others are. We know it's expensive and will evolve in the future. Since we don't have the molecular oncology expertise in-house and we've only had a histology lab for just over a year, we don't have immediate plans to insource. We agree that identifying strategic partnerships to minimize costs while improving care is a possibility, but this is complicated by rapid evolution in the competitive landscape. We have been looking at ways to integrate the results into discrete elements in Epic, but that also is complex and therefore continues to be an investigation.

Frank Beylo, what is your system doing regarding NGS?
Frank Beylo, BS, MT(ASCP), director, operations and technology, Inova Health Systems, Falls Church, Va.: We're in the middle of a Beaker implementation, and we're including Epic's genomic module as part of the implementation and interfacing with Foundation and Tempus as part of that project. We're slated to go live in January 2024 with Beaker, so we're in the throes of validation and testing, but we're also trying to standardize, using Foundation or Tempus, sending to one or two places to streamline that.

Rick Vander Heide, what are your views around this question of NGS?
Richard S. Vander Heide, MD, PhD, MBA, medical director, pathology and laboratory medicine service line, Marshfield Clinic Health System, Marshfield, Wis.: We're struggling with this now. We have a small oncology group but one that is aggressive in terms of ordering molecular tests. What is necessary for patient care and what is

academic interest is tricky. We do not have in-house capabilities; we send everything out mostly to Foundation. It's expensive. Similar to what Clark said—let's not jump into it, let's figure out what we need to do and what value we can add to the system without compromising other efforts.

Robert Carlson, fill us in on what's going on at NorDx.
Robert Carlson, MD, medical director, NorDx, MaineHealth: We have formed a precision medicine council and an oncology subgroup to drive consensus around what panels and markers are the most appropriate. We're upgrading our NGS platform and focusing on the myeloid panel to start. We use Tempus.

We're struggling with preauthorization and its timeliness and the burden of getting those markers reimbursed. That drives a lot of what we're considering to bring in-house in terms of timeliness of care. It's a volatile area now that we're paying attention to.

Elizabeth Grasmuck, what's going on in Little Rock?
Elizabeth Grasmuck, MD, associate professor of pathology, laboratory/pathology service line medical director, and vice chair of clinical operations, Department of Pathology, University of Arkansas for Medical Sciences: We're looking to bring some NGS in-house. Like others, we are sending to different providers such as Foundation. Standardization is the direction we want to move in and then ideally do as much as we can internally. We have a strong group of molecular pathologists who have been helping us find our way.

Michele Erickson-Johnson, how is Sanford exploring NGS?

Dr. Erickson-Johnson

Michele Erickson-Johnson, PhD, HCLD/TS (ABB), MB(ASCP)CM, senior director of laboratory operations medical genetics and biorepository and enterprise laboratory quality, Sanford Laboratories, and assistant professor of internal medicine, University of South Dakota Sanford School of Medicine: We hired a molecular pathologist last year and are looking into bringing our own cancer panel in-house by working with our oncologists to identify the right panel. Sanford currently monitors the quality indicators from the companies that currently do panel or NGS testing as a send-out. The Sanford medical genetics laboratory molecular pathologist is taking the information from what the companies are offering in panel testing and the quality considerations into how the medical genetics lab will develop a gene panel for Sanford.

Greg Sossaman, can you comment on what you've heard in this discussion?
Gregory Sossaman, MD, system chairman and service line leader, pathology and laboratory medicine, Ochsner Health, New Orleans: We use some of the same labs others do for NGS. We have a molecular tumor board and a lab stewardship committee, and we established a subcommittee of that devoted to precision medicine molecular genetics. It has allowed us to dive deeper into the preauthorization and reimbursement issues. We're trying to be careful around our investments. If you've seen one example of how someone is using NGS, you've seen one example because there are so many variations.

Preauthorizations are a big part of esoteric pathology these days, whether NGS or not. What has been your recent experience at Ochsner?
Dr. Sossaman (Ochsner): Some of these companies that advertise are pretty aggressive. They'll claim that patients are only liable for a certain amount on the front end, but then we hear from the physician group about complaints from patients on the back end about what they are really billed. It's on us to be careful about who we're choosing

as partners for these laboratories. We have looked into building into Epic a pre-work process, which is surprisingly complicated to automate. Those will be more common in the future because we will have to be more cognizant of the expense as many molecular tests become embedded in our subspecialties, like for neuropathology, hematopathology, et cetera. I think we'll see more commercial and other insurers focused on the preauthorization process. It's worth looking at how your institution does it and how it can become more automated and robust.

Epic has an orders and results interface but it doesn't say it's a billing interface. It's worth our time and effort to focus on those more manual processes.

If you've seen one module, you've seen one module, and the connections are not always turnkey.
Dr. Sossaman (Ochsner): That's right. The orders and results interface that they're standing up and the agreements with Foundation and Caris and other laboratories to be a hub instead of point-to-point interfaces seem to be the direction they're going. I'm not sure it will help with standardization because most of us build our Beaker or Epic systems and they're all a bit different. It will be interesting to see how that works out.